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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/652,579

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Vishnu K. Agarwal

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03/23/2005

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EXAMINER

EVERHART, CARIDAD

ART UNIT

PAPER NUMBER

2891

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/652,579	Applicant(s) AGARWAL, VISHNU K.	
	Examiner Caridad M. Everhart	Art Unit 2825	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 80-84 and 88-110 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 80,88,90-92,99-101 and 108-110 is/are allowed.
- 6) ☒ Claim(s) 81-84,89,93-98 and 102-107 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Applicant's arguments with respect to claims 81-83, 89,93-98,102-107 have been considered but are moot in view of the new ground(s) of rejection.

Applicant has amended to change the limitation "diborane and HCl" to "comprising HCl".

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 81-83,89,93-94, 96-98,102-103, 105-107 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagabushman et al (US 5,888,588) .

Nagabushnam et al discloses forming a silicon film and then a tungsten nitride film and a tungsten silicide film(col. 2, lines 19-25 and col. 3, lines 8-12 and 20-25 and 45-58). It is implied that the films are formed in the same reactor, as the ramping of the various source gases is taught in the cited portions of the disclosure made by Nagabushnam et al. Nagabushnam et al also disclose the deposition of BPSG(col. 4, lines 50-55).

Nagabushnam et al is silent with respect to a first reducing gas and with respect to HCl exposure.

Although Nagabushnam et al is silent with respect to a first reducing environment, it is clear that the tungsten nitride film is exposed to a reducing environment in the exposure to the silane. With respect to the HCl, it would have been obvious to one of ordinary skill in the art at the time of the invention that there would be exposure of the tungsten nitride to HCl in the by products of the formation of the silicide, as chlorides could be reactants(col. 5,lines 50-58).

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Claims ^{84, 95} 95 and 104 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagabushnam et al as applied to claim 81 above, and further in view of Huang(US 6,060,741).

Nagabushnam et al is silent with respect to the third conductor being polysilicon.

Huang teaches a gate stack in which the third layer is polysilicon(col. 4, lines 3-7).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have formed a third conductor of polysilicon in the method taught by Nagabushnam et al in view of the teaching of Huang because the method of deposition in the same chamber could be extended to the providing of a multilayer stack such as that taught by Huang, in which a control gate and a floating gate are formed.

Allowable Subject Matter

Claims 80, 88, 90-92,99,100,101,108-110 are allowed.

The prior art of record does not teach or suggest the HSG layer.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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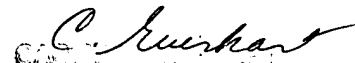
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caridad M. Everhart whose telephone number is 571-272-1892. The examiner can normally be reached on Monday through Fridays 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C. Everhart
3-21-2005


C. Everhart
PRIMARY EXAMINER